

IN THE DRAWINGS

Applicants enclose annotated sheets for illustrating amendments to Figs. 1, 13-14, and 18. Correspondingly, Applicants enclose replacement sheets for Figs. 1, 13-14, and 18 that reflect the amendments.

REMARKS

Claims 1-2 have been canceled. Claims 3-23 remain pending in the application.

Applicants amend Figs. 1, 13-14, and 18, and claims 4-5 and 21-23 for minor corrections.

Applicants amend claim 3 for clarification, and refer to Figs. 16-18 and their corresponding description in the specification for an exemplary embodiment of and support for the claimed invention. No new matter has been added.

Applicants acknowledge with appreciation the Examiner's finding that claims 4-7 and 9-23 contain allowable subject matter. Applicants amend claims 4-5 to overcome the §112, ¶2 rejection, as demonstrated below. Accordingly, Applicants respectfully request that the Examiner allow claims 4-5, together with claims 6-7, 9-10, 12-13, 15-16, 18-19, and 21-22 dependent therefrom, respectively. As further shown below, claims 3 and 8 are patentable over the references cited against them, respectively, and Applicants, therefore, request that the Examiner allow their respective dependent claims 11, 14, 17, 20, and 23.

The Examiner objected to Figs. 1, 13, and 14 for apparent errors. Applicants enclose annotated sheets for Figs. 1, 13, and 14 illustrating amendments to correct the errors noted by the Examiner. In addition, Applicants enclose an annotated sheet for Fig. 18 illustrating an amendment to correct the reference numeral designating element 82 described in the specification. Correspondingly, Applicants enclose replacement sheets for Figs. 1, 13-14, and 18 that reflect the foregoing amendments. Applicants respectfully request that the Examiner withdraw the objection and accept the drawings.

The Examiner objected to claim 3 for the apparent informality of not reciting the features of the "trigonometric function calculating unit" to correspond to the disclosure in the specification. Applicants amend claim 3 to clearly recite features corresponding to the claimed

“trigonometric function calculating unit.” Applicants refer to Figs. 16-18 and their corresponding description in the specification for an exemplary embodiment of the claimed features. Applicants respectfully request that the Examiner withdraw the objection.

Claims 4 and 5 stand rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention. In particular, the Examiner objected to phrases in these claims for lacking antecedent basis. Applicants amend these claims to replace the term “ the” with “a” for the objected-to phrases. Accordingly, Applicants respectfully request that the Examiner withdraw the §112, ¶2 rejection and allow claims 4-5, together with claims 6-7, 9-10, 12-13, 15-16, 18-19, and 21-22 dependent therefrom, respectively.

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants’ Admitted Prior Art (“AAPA”); and claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of U.S. Patent No. 5,621,774 to Ishibashi et al. Applicants amend claim 3 in a good faith effort to clarify the invention as distinguished from the cited references, and respectfully traverse the rejections.

The Examiner contended that although AAPA does not explicitly disclose “trigonometric function,” such a feature would have been obvious to one skilled in the art in view thereof because AAPA includes description of measuring and adjusting phase relationships, which may be considered in terms of angular relationships. The Examiner relied upon Ishibashi et al. as a combining reference that allegedly discloses the features of the inter-data phase adjusting circuit recited in claim 8.

Applicants described in AAPA a technique where an input signal is subjected to a serial-parallel conversion, where each of the parallel-converted signals is made into one having a low

transmission rate, and where each signal is then subjected to a phase adjustment in a PLO scheme. Ishibashi et al. describe a variable delay control circuit gradually reducing a delay time of variable delay circuits for respective data, and completing control of the variable delay circuits when the latch circuits can be latched.

Thus, neither AAPA nor Ishibashi et al. disclose or suggest the features of the claimed trigonometric function calculating unit, which performs a phase shift operation that is based on trigonometric function calculation using an output from a phase comparator as a parameter.

In other words, AAPA, as cited and relied upon by the Examiner, fail to disclose or suggest,

“[a] parallel signal automatic phase adjusting circuit having a number of data signal channels inputted together with a clock signal and adjusting the clock signal so that each clock signal is synchronized with each of the data signals, the parallel signal automatic phase adjusting circuit comprising:

adjusting circuits provided in correspondence to the respective data signal channels for effecting adjustment on the clock signal generated from the oscillating circuit so that the clock signal is synchronized with the corresponding data signal, wherein each of the adjusting circuits is arranged to include a phase comparator for comparing the clock signal and the data signal in phase and outputting a phase difference signal as a result of the comparing, and

a trigonometric function calculating unit for performing a phase shift operation of the clock signal by the phase difference thereby effecting adjustment on the clock signal so that the clock signal is synchronized with the data signal, based on trigonometric function calculation using the phase difference signal outputted from the phase comparator as a parameter, wherein

when δ represents a phase difference of the clock signal relative to the data signal and $V_0 \sin \omega$ represents the clock signal generated from the oscillating circuit,

the trigonometric function calculation includes determining an adjusted clock signal V_{ck} by $V_{ck} = V_0 \sin(\omega t + \delta) = V_0 \sin \omega t * \cos \delta + V_0 \cos \omega t * \sin \delta$,” as recited in claim 3. (Emphasis added)

Accordingly, Applicants respectfully submit that claim 3 is patentable over AAPA for at least the above-stated reasons.

The Examiner relied upon Ishibashi et al. as a combining reference to specifically address the additional features recited in claim 8. And as discussed above, the combination of this reference would not have cured the deficiencies of AAPA with respect to claim 3, even assuming, arguendo, that such a combination would have been obvious to one skilled in the art at the time the claimed invention was made. Accordingly, Applicants respectfully submit that claim 8 is patentable over the cited references for at least the foregoing reasons.

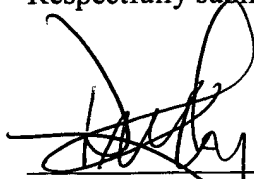
The above statements on the disclosures in the cited references represent the present opinions of the undersigned attorney. The Examiner is respectfully requested to specifically indicate those portions of the respective reference that provide the basis for a view contrary to any of the above-stated opinions.

Applicants appreciate the Examiner's implicit finding that the additional references made of record, but not applied, do not render the claims of the present application unpatentable, whether these references are considered alone or in combination with others.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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DTC:bf



Annotated Sheet

FIG. 1

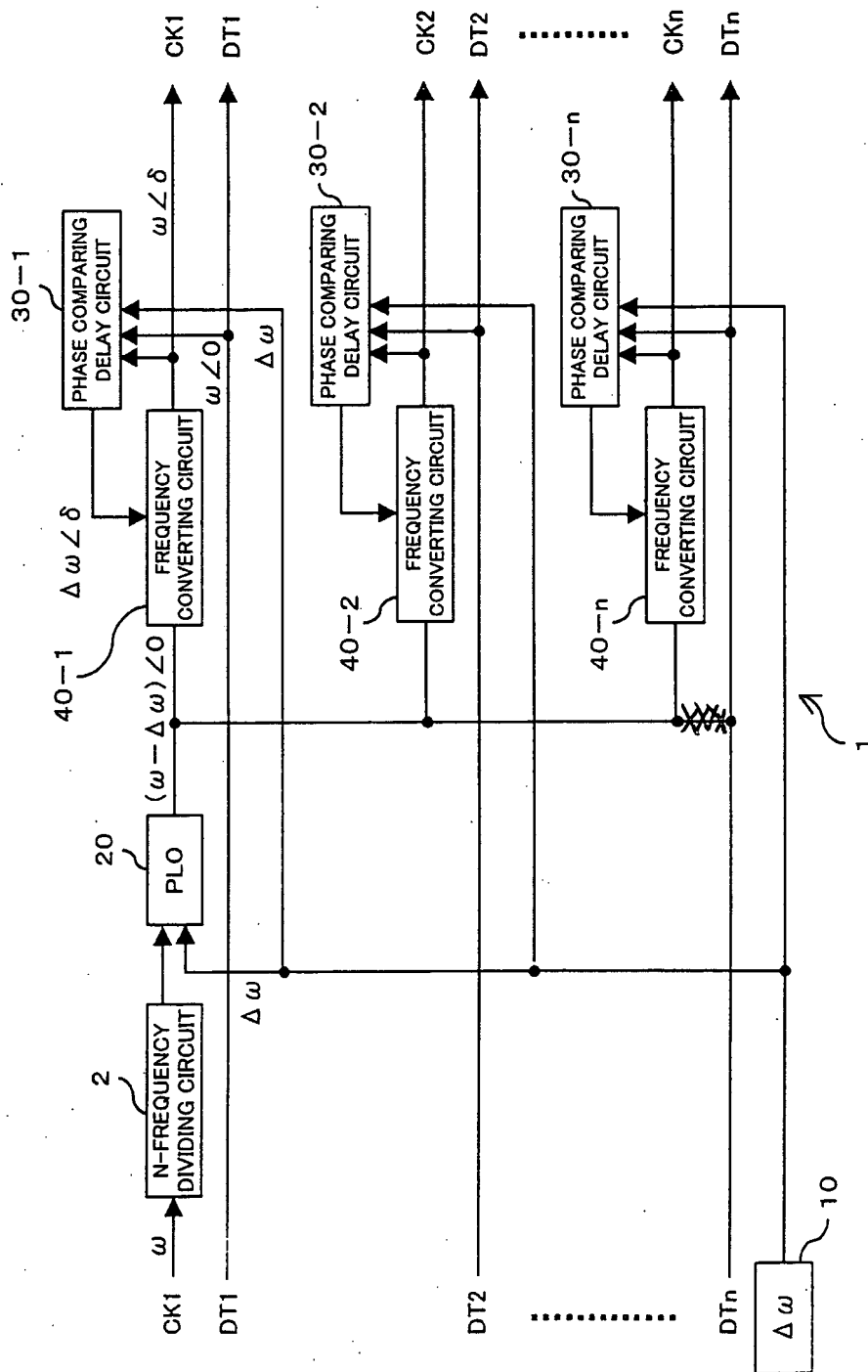


FIG. 13

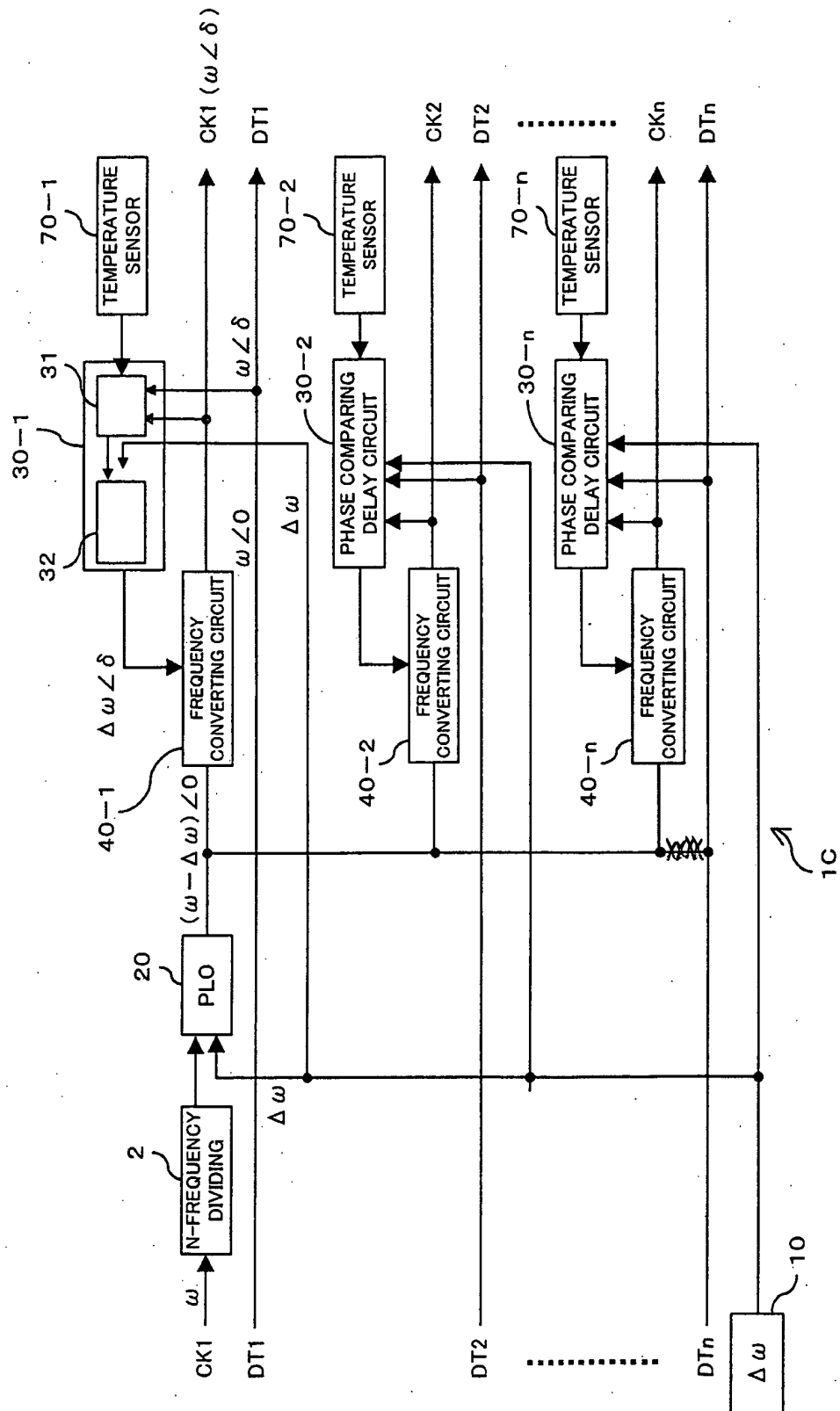


FIG. 14

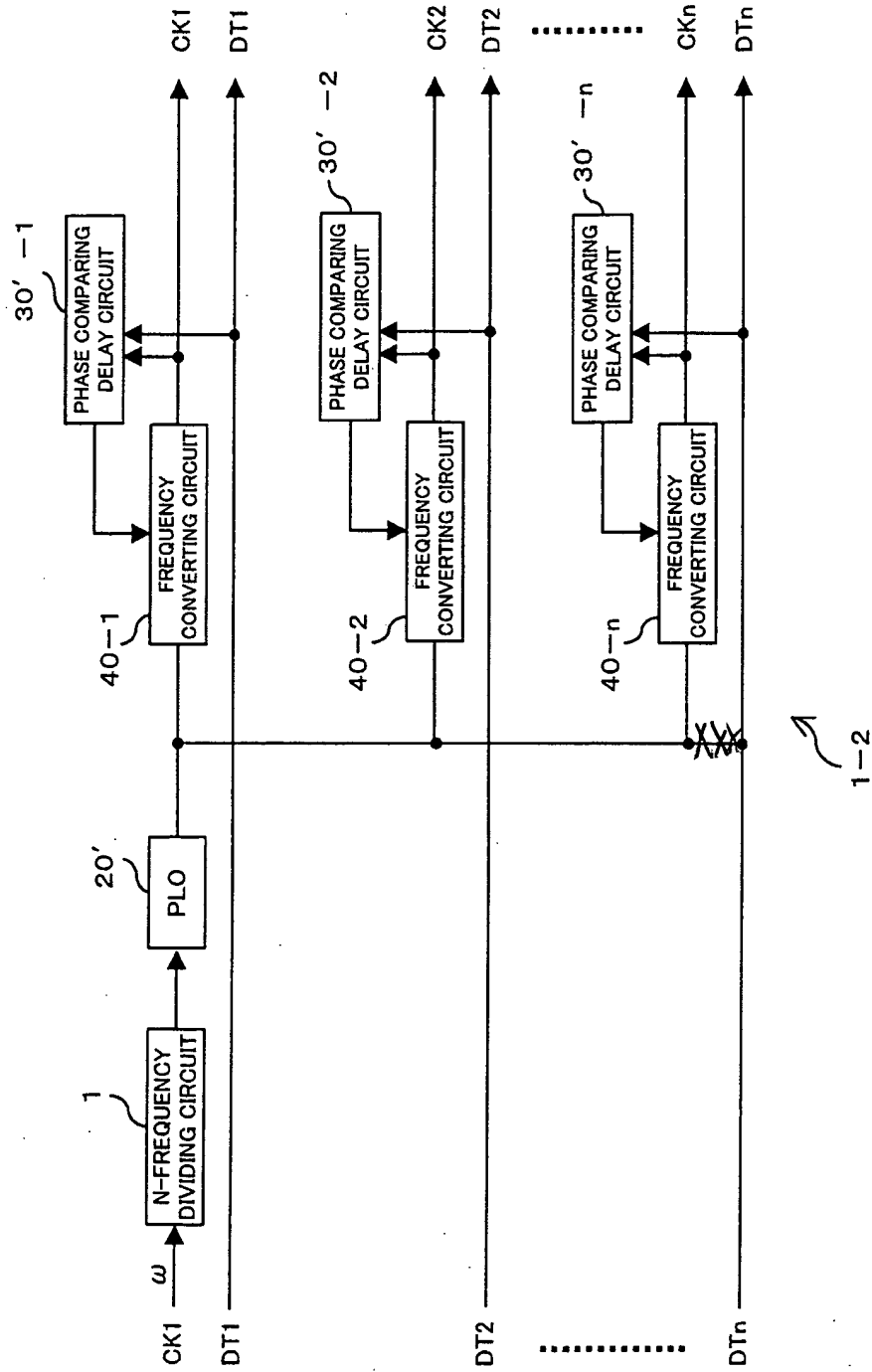


FIG. 18

